

WHAT IS CLAIMED IS:

1. A nucleolin antisense oligonucleotide for proliferation inhibition of tumor cells comprising at least one nucleotide sequence as designated SEQ ID NO:1, wherein the nucleotide sequence can hybridize to nucleolin mRNA specifically and suppress nucleolin expression.
2. The nucleolin antisense oligonucleotide of claim 1, wherein the nucleolin antisense oligonucleotide is effective in inhibition of tumor cell proliferation.
3. The nucleolin antisense oligonucleotide of claim 2, wherein the nucleolin antisense is effective in reduction of tumor size *in vivo*.
4. The nucleolin antisense oligonucleotide of claim 1, wherein the specific nucleolin mRNA sequence comprises translation start codon of the mRNA.
5. The nucleolin antisense oligonucleotide of claim 1, wherein the nucleolin antisense is a phosphorothioate-modified oligonucleotide.
6. The nucleolin antisense oligonucleotide of claim 1, wherein the tumor cells are nasopharyngeal carcinoma cells, ovarian cancer cells, colon cancer cells, oral cancer cells, uterine cervical cancer cells, pulmonary adenocarcinoma cells, prostate cancer cells or leukemia cells.
7. A vector of nucleolin antisense oligonucleotide for tumor growth inhibition, wherein the nucleolin antisense oligonucleotide is SEQ ID NO:1.
8. A therapeutic composition comprising the nucleolin antisense oligonucleotide of claim 1 and a pharmaceutically acceptable carrier or diluent.

9. A method for proliferation inhibition of tumor cells, wherein the method comprising the steps of: hybridizing nucleolin antisense oligonucleotides of claim 1 to nucleolin mRNAs of the tumor cells, inhibiting expression of the nucleolin, and inhibiting proliferation of tumor cells.
10. The method of claim 9, wherein the tumor cells are nasopharyngeal carcinoma cells, ovarian cancer cells, colon cancer cells, oral cancer cells, uterine cervical cancer cells, pulmonary adenocarcinoma cells, prostate cancer cells or leukemia cells.